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Stable Ischemic Heart Disease

ENDOTHELIAL FUNCTION AND PLATELET REACTIVITY IN PATIENTS AFTER PERCUTANEOUS CORONARY INTERVENTION: THE IMPACT OF CLOPIDOGREL, PRASUGREL AND TICAGRELOL

Poster Contributions
Hall C
Monday, March 31, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Stable Ischemic Heart Disease: Focus on Platelets
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Background: The clinical benefit of clopidogrel, prasugrel and ticagrelol has been attributed to their antiplatelet effects. We studied the different impact of clopidogrel, prasugrel and ticagrelol on endothelial function and platelet reactivity in coronary artery disease (CAD) patients.

Methods: We consecutively enrolled 45 patients with stable CAD one month after percutaneus coronary intervention (PCI): 15 patients receiving prasugrel regimen (10mg/d), 15 patients receiving clopidogrel regimen (75mg/d) and 15 patients receiving ticagrelol regiment (180mg/d). Endothelial function was evaluated by flow mediated dilation (FMD) in the brachial artery. High on treatment platelet reactivity was evaluated using VerifyNow Assay. VerifyNow reports its results in P2Y12 reaction units (PRU) and the diagnostic cut-off value is 230 PRU.

Results: There was no difference between CAD patients in the three treatment groups (clopidogrel vs. prasugrel vs. ticagrelol) in age (55±8y vs. 58±10y vs. 54±11y, p=0.55), prevalence of male sex (88% vs. 94% vs. 77%, p=0.41), smoking habits (40% vs. 33% vs. 46%, p=0.14), presence of diabetes mellitus (53% vs. 21% vs. 16%, p=0.06) and in the presence of multi vessel CAD (43% vs. 43% vs. 62%, p=0.53). Interestingly, subjects under clopidogrel treatment had increased PRU compared to subjects under prasugrel and ticagrelol treatment [204(168 to 276) vs. 125 (52 to 155) vs. 50(7 to 167), p<0.001)]. Importantly, subjects in clopidogrel group had significantly impaired FMD compared to subjects in prasugrel and ticagrelol groups (4.76±1.97% vs. 8.66±3.76% vs. 8.68±1.24%, p=0.002). Finally, in the total study population there was an inverse association between FMD and PRU (rho=-0.387, p=0.02).

Conclusion: Prasugrel and ticagrelol treatment compared to clopidogrel treatment, showed a greater inhibition of platelet activation in CAD patients after PCI with a parallel improvement in endothelial function. Further studies are needed to elucidate the impact of prasugrel, ticagrelol and clopidogrel treatment on vascular function and atherosclerosis progression.